

REMARKS

Claims 1-26 are pending in the subject application with entry of this paper.

Applicant acknowledges the indicated allowability of Claims 2-5 and 20-22.

Claims 1-2, 4, 6-8, 12-13, 17, 19 and 23-25 have been amended to correct informalities.

Claims 1, 6-19 and 23-26 stand rejected.

Rejection under 35 U.S.C. § 112

At paragraphs 1 and 2 of the Action, the Office rejected Claims 1, 8, 19 and 23-25 under 35 U.S.C. § 112, second paragraph as being allegedly indefinite for failing to point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant has amended Claims 1, 8, 19 and 23-25 to correct the informalities identified by the Office. Reconsideration and withdrawal of the rejections under Section 112 are respectfully solicited.

Rejection under 35 U.S.C. § 102(b)

At paragraph 5 of the Action, the Office improperly rejected Claims 17 and 18 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,501,955 to Durrant. Applicant submits that Durrant fails to teach or disclose each and every element of Claims 17 and 18 and respectfully requests reconsideration and withdrawal of the rejection thereof.

Claim 17, as amended, recites

In a network overlay geo-location system for locating a mobile appliance in a host wireless communication system where the host wireless communication system has a plurality of base stations and one or more repeater stations, a method of determining whether a signal

transmitted by a mobile appliance is received at one of the base stations directly or via the one or more repeater stations, comprising:

- determining the approximate distance between the base station and the mobile appliance based on the TA of the mobile appliance's transmitted signal,
- determining a touch stone equivalent distance,
- comparing the equivalent distance with the approximate distance

and,

- determining if the signal is received directly from the mobile appliance or through a repeater based in part on the comparison.

In contrast, Durrant discloses providing radio frequency (RF) repeaters to enhance signal to noise interference ratios (SNIRs) and to tag signals passing through the provided RF repeaters (*see* Durrant 2:62-67). Throughout the specification and in each embodiment disclosed by Durrant, the RF repeaters (or data repeaters) comprise a diplexed (combined transmit and receive with different frequencies) antenna pointed in the direction of a desired base station and/or another diplexed antenna pointed toward the desired location of increased mobile data service (*see* 5:53-64; 7:36-47). The RF repeaters filter and amplify a specific signal/frequency and tag the signal by amplitude or phase modulation of the signal (*see* 5:65-6:26). The embodiment of Durrant employing a Location Measurement Unit (LMU) (*see* Figure 5 and 9:57-10:12) incorporates a time of arrival (TOA) receiver to measure propagation time delay between a mobile unit and the LMU. The propagation time delay is then converted to a distance measurement. Because of the use of the repeaters described above, signal tags (an amplitude or phase modulation of the signal) are introduced with the respective signal. These signal tags are introduced to account for errors in position determination (*see* 10:5-8) as the RF path taken through the repeater antennas is not the same path (*i.e.*, not a direct path) taken through the LMU (*see* 2:30-61).

Durrant is fundamentally different from Applicant's invention. There is no disclosure in Durrant of determining whether a signal has passed through a repeater as a function of a comparison between a touch stone equivalent distance with an approximate distance between a base station and the mobile appliance based on the TA of the mobile appliance's transmitted signal. For support of these elements, the Office cites to Column 4, lines 61-66 of Durrant which recite:

In addition to providing isolation between the received signals and the repeated signals, the RF signal repeater 20 may also tag the repeated signal with an electronic signature so that repeated signals may be distinguished from signals originating at either a mobile unit (not illustrated) or a base station 10. *See* 4:61-66.

None of this portion or any portion of Durrant discloses or provides support for determining a touch stone equivalent distance or comparing the equivalent distance with an approximate distance. Rather, the portion cited by the Office, and the remainder of the reference, merely speak to tagging a repeated signal to distinguish the repeated signal from signals originating at a mobile unit or base station. Durrant thus accounts for and measures only the propagation time delay (TOA) between the mobile unit and LMU, converts this to a distance measurement, and tags the corresponding signal as discussed above. For these reasons at least, Applicant respectfully requests reconsideration and withdrawal of the rejection of Claim 17.

Claim 18 is dependent upon independent Claim 17. Independent Claim 17 is in condition for allowance. By virtue of its dependency and without regard for the additional patentable elements contained therein, reconsideration and withdrawal of the rejection of Claim 18 are hereby solicited.

Rejections under 35 U.S.C. § 103(a)**1. Claims 1, 6-7, 19 and 23-26**

At paragraph 7 of the Action, the Office improperly rejected Claims 1, 6-7, 19 and 23-26 under 35 U.S.C. § 103(a) as being unpatentable over Durrant in view of U.S. Patent Pub. No. 2003/0220075 to Baker and U.S. Patent Pub. No. 2003/0162550 to Kuwahara. Applicant submits that Durrant in view of Baker and Kuwahara fails to provide a *prima facie* case of obviousness, and Applicant respectfully requests withdrawal of the rejection under § 103(a).

In order for the Office to establish a *prima facie* case for obviousness, three (3) criteria must be met. First, there must be some suggestion or motivation, either in the cited prior art references or in the knowledge generally available to those of ordinary skill in the art, to modify the primary reference as the Office proposes. *See In re Napier*, 55 F.3d 610 (Fed. Cir. 1995). Second, there must be a reasonable expectation of success in connection with the Office's proposed combination of the references. *See In re Clinton*, 527 F.2d 1226 (CCPA 1976). Third, the prior art references must disclose or suggest all of the claimed limitations. *See In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988); *See also* MPEP 2143. The Office has failed to establish a *prima facie* case for obviousness because the Office failed to satisfy its burden of showing that the prior art discloses or suggests all of the claimed elements of Claims 1, 6-7, 19 and 23-26 and has failed to satisfy its burden of showing that there is a suggestion or motivation to one of ordinary skill in the art to modify the primary reference as the Office proposes.

For example, independent Claims 1 and 19 each require determining an accuracy of a location estimate, and determining if a Timing Advance (TA) of the uplink signal can be associated with an Equivalent Propagation Distance (EPD) of a repeater. Rather than citing to a portion of Durrant that provides support for these elements the Office performed the following analysis:

...given a broad interpretation, the accuracy of the estimate can be as accurate as the calibration of the elements in the system. In addition, if the estimate is good enough for location related to a 911 emergency, it is accurate enough...(see Action, page 5, lines 6-8)

* * *

...the BS determines and commands the TA to the repeater, therefore, the EPD is associated with the determined repeater, e.g., "mobile equivalent...(see Action, page 5, lines 10-12)

* * *

Each of these conclusions are without evidentiary support in Durrant, the MPEP or in the law.

As discussed above, Durrant provides RF repeaters to enhance SNIRs and tags signals passing through the provided RF repeaters by amplitude or phase modulation of the signal (see 5:65-6:26). The embodiment of Durrant employing an LMU incorporates a TOA receiver to measure propagation time delay between a mobile unit and the LMU. This propagation time delay is converted to a distance measurement. Because of the use of the repeaters described above, signal tags are introduced with the respective signal to account for errors in position determination (see 10:5-8). There is, however, no disclosure in Durrant of (i) determining an accuracy of a location estimate or (ii) determining if a Timing Advance (TA) of the uplink signal can be associated with the Equivalent Propagation Distance (EPD) of a repeater, and the Office's analysis appears to support Applicant's conclusion.

A. Determining an accuracy of a location estimate

For example, rather than citing to a portion of Durrant that discloses determining an accuracy of a location estimate, the Office took the unsupported position that because the background of Durrant discloses providing a network with a location estimate of a mobile unit for E911 purposes, then “it is accurate enough.” (*see* Action, page 5, line 8.) First, there is no support in Durrant for determining any type of accuracy of a location estimate. Durrant has no need to determine the accuracy of a location estimation and to conclude otherwise is impermissible hindsight. Rather, Durrant is directed to enhancing SNIRs within a cell site without interfering with a location of a mobile unit. *See* 2:62-67. Indeed, there is no need in Durrant to determine the accuracy of a location estimate. ***For the Office to assert that because a location estimate exists the accuracy thereof must have been determined is impermissible and without legal precedent.*** The Office has not relied upon any teaching in the art for support of this conclusion nor has the Office relied upon any logical and sound scientific principles. The Office has the burden of providing evidentiary support for the existence of its conclusion and none has been provided. Withdrawal of the rejection for this reason at least is respectfully requested.

B. Determining if TA of the uplink signal can be associated with the EPD of a repeater

The only distance determined by Durrant is the conversion of the propagation time delay to a distance measurement. This time delay is a function of the delay (that is, TOA) of a signal ***between a mobile unit and an LMU.*** *See* 9:57-10:12. There is no disclosure in Durrant, however, that this distance measurement is a function of or can be associated

with an equivalent propagation distance, that is, the distance from a base station to the repeater (*see* paragraph [0077] of Applicant's published application).

Further, the Office's conclusion that because a base station determines and commands a TA to a repeater the "EPD is associated with the determined repeater, e.g., 'mobile equivalent'" is nonsensical. *The GSM mobile equivalent in Durrant is merely a device that performs the functions of a GSM cellular phone*, hence the use of the term, "mobile equivalent" rather than "mobile phone." *See* 6:57-62. The GSM mobile equivalent does nothing more than act as an intermediary and provide timing advance and other control information to an RF signal repeater 20 when commanded by a respective base station to do so. Therefore, performing the functions of a GSM cellular phone, the GSM mobile equivalent *cannot determine* if the TA of an uplink signal can be associated with the equivalent propagation distance of a repeater; rather, the GSM mobile equivalent merely passes TA and other information to the repeater.

As the Office is undoubtedly aware, in *KSR*, the Supreme Court did nothing to alter the principle that all claimed features must be taught or suggested. *See* MPEP § 2143.03. Thus, Applicant submits the Office has not met its *prima facie* burden of proof that each and every element of Applicant's claimed subject matter is taught or would be obvious by the references of record, alone or in combination. Applicant respectfully requests reconsideration and withdrawal of the rejection of independent Claims 1 and 19 for at least the reasons discussed above.

C. Baker

The Office utilized Baker in an attempt to supplement the deficiencies of Durrant, namely, (i) determining the relationship between the power of the received signals and the power at which the mobile appliance transmitted the uplink signal, and (ii) determining at least one figure of merit based on at least one of the accuracy of the estimate, the TA of the uplink signal, the equivalent propagation distance, the receivers receiving the uplink signal, the transmitted signals received by the mobile appliance, the power of the received signal, and the power at which the mobile appliance transmitted the uplink signal. The Office addressed element (i) above; however, the Office failed to address element (ii) in its rejection. Regarding element (i) it appears that Baker, as a function of a discriminant applied by a repeater in a reverse link signal, controls and commands a remote station (base station 104 or control station 102) to a different power. *See* [0075]. This discriminant is in the form of an amplitude imparted to the power from a repeater. *Id.* As a function of this discriminant and only this discriminant, Baker controls the base station power. What is not disclosed in Baker, however, is determining a relationship between the power at which the mobile appliance transmitted the uplink signal and the power of the uplink signals received by the receivers. No relationship in Baker is ever contemplated or made between these powers; to the contrary, power control is only a function of the presence of a discriminant employed by a repeater rather than as a function of a relationship between the power at which the mobile appliance transmitted the uplink signal and the power of the uplink signals received by the receivers. Applicant submits

that, in view of the teachings of Baker, one of ordinary skill in the art would not combine Baker with Durrant for the purposes of teaching element (i) above.

Additionally, the Office admits that element (ii) above is not disclosed in Durrant but provides no support in Baker (or Kuwahara) for such a teaching. In a good faith effort to further prosecution, Applicant submits that Baker cannot be relied upon to teach this element as there is no discussion in Baker of determining any figure of merit. In view of Applicant's specification, a figure of merit is based on one or more of the later enumerative quantitative values in addition to other quantitative values chosen by a network operator. *See* paragraph [0093] of Applicant's published application. No such figure of merit is described or even contemplated in Baker and such silence cannot provide *prima facie* support for this element. Reconsideration and withdrawal of the rejection of Claims 1 and 19 are respectfully requested for this reason as well.

In determining the differences between the prior art and the claims, the question under 35 U.S.C. § 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782 (Fed. Cir. 1983). The claims require elements (i) and (ii) enumerated above and, as admitted by the Office, the primary reference Durrant fails to teach or suggest this recited claim element. As discussed above, it is also evident that the secondary reference Baker fails to teach or suggest these elements as well. Therefore, the Office's reliance upon Durrant as the primary reference and Baker as a secondary reference is flawed, and neither of these references can be relied upon to provide a *prima*

facie case of obviousness. For these reasons, the Office has failed to meet its burden under Section 103(a) and Applicant respectfully requests withdrawal of the rejection of independent Claims 1 and 19. Claims 6-7 and 23-26 are dependent upon independent Claims 1 and 19. Independent Claims 1 and 19 are in condition for allowance. By virtue of their dependency and without regard for the additional patentable elements contained therein, reconsideration and withdrawal of the rejection of Claims 6-7 and 23-26 are hereby solicited.

2. Claims 8-11

At paragraph 7 of the Action, the Office improperly rejected Claims 8-11 under 35 U.S.C. § 103(a) as being unpatentable over Baker in view of Kuwahara. Applicant submits that Baker in view of Kuwahara fails to provide a *prima facie* case of obviousness, and Applicant respectfully requests withdrawal of the rejection under § 103(a).

Claim 8 recites, in part, “determining a timing advance of the received uplink signal and comparing the timing advance with a known equivalent propagation distance associated with each of the one or more repeaters.” The Office’s rejection appears to admit that the primary reference Baker fails to teach this element and relies upon Kuwahara to supplement Baker’s deficiencies; however, the Office improperly concludes that Baker teaches “measuring an attribute of the mobile appliance’s received uplink signal.” This is factually incorrect.

As discussed above, Baker controls and commands a remote station (base station 104 or control station 102) to a different power as a function of a discriminant applied by

a repeater in a reverse link signal. *See* paragraph [0075]. This discriminant is not transmitted by the mobile appliance but is rather provided by the repeater when the repeater receives the mobile appliance's signal and applies an amplitude modulation to the power of the repeated signal. Therefore, this "attribute" is not from the mobile appliance but is from a signal received from the repeater. In other words, Baker does not measure attributes from a mobile appliance's uplink signal, but when a received signal contains the discriminant described in Baker, the invention of Baker recognizes the imparted amplitude modulation and notes that the signal was received by a repeater. For this reason at least, the Office's reliance upon Baker as the primary reference is improper. Reconsideration and withdrawal of the rejection of independent Claim 8 is respectfully requested. Claims 9-11 are dependent upon independent Claim 8. Independent Claim 8 is in condition for allowance. By virtue of their dependency and without regard for the additional patentable elements contained therein, reconsideration and withdrawal of the rejection of Claims 9-11 are hereby solicited.

3. Claims 12-16 and 27-30

At paragraph 9 of the Action, the Office improperly rejected Claims 12-16 and 27-30 under 35 U.S.C. § 103(a) as being unpatentable over Durrant in view of Kuwahara. Applicant submits that Durrant in view of Kuwahara fails to provide a *prima facie* case of obviousness, and Applicant respectfully requests withdrawal of the rejection under §103(a). Claims 27-30 have been cancelled without prejudice.

Claim 12 recites, in part,

determining the probability for each of two hypothesis and choosing the hypothesis with the greatest probability, wherein the probabilities for each of the two hypothesis are based on a timing advance of the transmitted uplink signal, hearability of the transmitted uplink signal and known locations and delays of the one or more repeaters.

As the Office is aware, the term “hypothesis” is generally an explanation for an occurrence of a specified group of phenomena. In this case, one hypothesis is whether the uplink signal is received directly from a mobile appliance, and the second hypothesis is whether the uplink signal is received via a repeater (see preamble of Claim 12). The probability of each of these hypothesis are, as claimed, a function of timing advance of a transmitted uplink signal, hearability of the transmitted uplink signal, and known locations *and* delays of the one or more repeaters. None of the cited references are directed to evaluating *probabilities* of whether or not a signal is received directly from a mobile appliance or via a repeater. Rather, Durrant provides RF repeaters to enhance SNIRs and tags signals passing through the provided RF repeaters (*see* Durrant 2:62-67) - - *no probabalistic determination is ever made or contemplated*. Likewise, Kawahara receives a delay measurement and compares this measurement to a threshold, *e.g.*, double the average interval between base stations. If the measurement is below the threshold, then a respective signal was not received via a repeater (see paragraph [0052]); however, like Durrant, *no probabalistic determination is ever made or contemplated* in Baker. For these reasons, Applicant respectfully requests reconsideration and withdrawal of the rejection of independent Claim 12.

Claims 13-16 are dependent upon independent Claim 12. Independent Claim 12 is in condition for allowance. By virtue of their dependency and without regard for the additional patentable elements contained therein, reconsideration and withdrawal of the rejection of Claims 13-16 are hereby solicited.

CONCLUSION

Applicant believes that the present application is in condition for allowance and, as such, it is earnestly requested that Claims 1-26 be allowed to issue in a U.S. Patent.

If the Examiner believes that an in-person or telephonic interview with the Applicant's representatives will expedite the prosecution of the subject patent application, the Examiner is invited to contact the undersigned agents of record.

The Office is requested and hereby authorized to charge the appropriate extension-of-time fees against **Deposit Account No. 04-1679** to Duane Morris LLP.

/mcc/

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